

What is claimed is:

1. An integral circuit protection device providing overcurrent and overvoltage protection for a circuit and configured to be connected to the circuit, comprising:

5 an overcurrent protection portion;  
an overvoltage protection portion; and  
a plurality of terminals for connecting both the overvoltage and overcurrent protection portions of the integral circuit protection device to the circuit to be protected, wherein a part of the overvoltage protection

10 portion serves as one of the plurality of terminals.

2. The integral circuit protection device of claim 1, wherein the plurality of terminals includes first, second and third terminals, the part of the overvoltage protection portion serving as one of the plurality of

15 terminals being the third terminal, the overcurrent protection portion being electrically connected between the first and second terminals, and the overvoltage protection portion being connected to the second terminal.

3. The integral circuit protection device of claim 1, wherein the overcurrent protection portion includes a fuse.

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4. The integral circuit protection device of claim 1, wherein the overvoltage protection portion includes a bi-directional thyristor.

5. The integral circuit protection device of claim 1, wherein the plurality of terminals are configured to electrically connect the overcurrent protection portion in series with the circuit to be protected and to electrically connect the overvoltage protection portion in parallel with the circuit to be protected when the integral circuit protection device is

25 electrically connected to the circuit to be protected.

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6. The integral circuit protection device of claim 1, further comprising:

~~a thermally conductive portion that conducts heat away from the~~

35 overvoltage protection portion.





wherein the electrically conductive layers are electrically connected to the overcurrent device disposed within the inner hollow portion of the tube.

5            19.    The circuit element of claim 13, further comprising:  
             an integrally formed bond pad and connector piece connected between  
             the second terminal and the overvoltage protection device.

10           20.    The circuit element of claim 13, wherein the overcurrent device  
             is electrically connected in series with the circuit to be protected and the  
             overvoltage protection device is electrically connected in parallel with the  
             circuit to be protected.

15           21.    The circuit element of claim 13, wherein the circuit element  
             mounting member further comprises:  
             a substrate having first and second surfaces; and  
             a plurality of wire terminations disposed on at least one of the first and  
             second surfaces, wherein at least the first and second terminals are each  
             respectively comprised of one of the plurality of wire terminations.

20           22.    The circuit element of claim 21, wherein the overcurrent  
             protection device is comprised of a fuse element electrically connected  
             between the first and second terminals and disposed on at least one side of  
             the substrate, and the overvoltage protection device is comprised of a  
25           thyristor electrically connected to the second terminal and disposed on at  
             least one side of the substrate.

30           23.    The circuit element of claim 21, further comprising:  
             an atmospherically resistant encapsulant disposed on at least one side  
             of the substrate and having a fuse element and thyristor therebetween.

24.    The circuit element of claim 21, wherein the first, second and  
third terminals are formed on at least a same side of the circuit element.

35           25.    The circuit element of claim 21, further comprising:  
             an integrally formed bond pad and connector piece connected between  
             the second terminal and the overvoltage protection device.



5 electrically connecting one of the first and second terminals to a first incoming line to the telecommunications circuit and electrically connecting the other of the first and second terminals to the telecommunications circuit such that the overcurrent protection element is connected in series with the telecommunications circuit; and

electrically connecting the third terminal to a second incoming line to the telecommunications circuit such that the overvoltage protection element is connected in parallel with the telecommunications circuit.

10 32. The method of claim 30, further comprising the steps of:  
providing the mounting member with both a second overcurrent protection element and a second overvoltage protection element; and  
15 disposing the second overcurrent and overvoltage protection elements within the mounting member such that the second overcurrent protection element is electrically connected between fourth and fifth terminals of the plurality of terminals and the second overvoltage protection element is electrically connected between the third and fifth terminals of the plurality of terminals.

20 33. The method of claim 32, further comprising the steps of:  
electrically connecting one of the first and second terminals to a first incoming line to the telecommunications circuit and electrically connecting the other of the first and second terminals to the telecommunications circuit such that the overcurrent protection element is  
25 connected in series with the telecommunications circuit;  
electrically connecting one of the fourth and fifth terminals to a second incoming line to the telecommunications circuit and electrically connecting the other of the fourth and fifth terminals to the telecommunications circuit such that the second overcurrent protection  
30 element is connected in series with the telecommunications circuit; and  
electrically connecting the fifth terminal to the second incoming line to the telecommunications circuit such that the overvoltage protection element and second overvoltage protection element are jointly connected  
in parallel with the telecommunications circuit.

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34. The method of claim 32, further comprising the step of:

